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| 10/782,055 | 02/19/2004 | Charles D. Bateman | H0005749 (H000-1-5749) | 5748 |
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| HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245 | | | STONE, JENNIFER A | |
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| | | | 2636 | |

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,055

Applicant(s)

BATEMAN ET AL.

Examiner

Jennifer A. Stone

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 39, 49 and 58-61 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-27, 29-37, 40, 42-47, 50 and 52-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6-8, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), and further in view of Tran (US 5,892,462).

For claim 1, Hennings discloses a method comprising: receiving one of a caution alert or a warning alert from a warning system; waiting a predefined period of time for positive flight control input by the flight crew; and initiating auto-recovery if no positive flight control input has been performed at time of expiration of the waiting period (col 7, lns 35-59). Hennings discloses initiating auto-recovery for generating one auto-recovery route (col 9, lns 3-16), but does not disclose a means for initiating auto-recovery for generating two or more auto-recovery routes; however, Tran discloses initiating auto-recovery for generating two or more auto-recovery routes (col 3, lns 7-13; col 8, lns 18-24; col 11, lns 28-54; col 12, lns 22-34; col 14, lns 54-60; col 15, lns 25-28 and 40-43; col 15, ln 67; col 16, lns 1-10; Fig. 9, items 52, 54). It would have been obvious to one of ordinary skill in the art, at the time the invention was made to include two auto-recovery routes so that an aircraft determines the most appropriate type of flight required to evade a possible collision with the ground (col 15, lns 40-43).

For claim 6, analyzing possible recovery routes includes: selecting the first analyzed route that is determined to clear the caution or warning alert (col 8, Ins 54-65).

For claim 7, Hennings discloses analyzing possible recovery routes includes automatically selecting the recovery route determined to have the best climb gradient (col 8, Ins 31-38; col 9, Ins 1-10). The “best climb gradient” is a relative phrase and is interpreted as any climb gradient necessary to avoid hazards or obstacles and to ensure the safety of the aircraft crew and passengers.

For claim 8, initiating auto-recovery includes sending flight instructions to an autopilot system (col 5, Ins 58-61).

For claim 10, Hennings discloses initiating auto-recovery includes sending control signals to flight control actuators (Fig. 1, item 180; col 4, Ins 1-8; col 7, Ins 40-44).

For claim 12, the warning system includes an enhanced ground proximity warning system (col 7, Ins 56-59; col 8, Ins 59-63).

3. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 1, and further in view of Block et al. (US 6,591,170).

For claim 2, Hennings discloses initiating auto-recovery includes increasing flight path angle if a caution alert is received (col 8, Ins 65-67; col 9, Ins 1-10). However, Hennings does not disclose the flight path angle to be 2°. Block, however, teaches that numerous flight path angles are specified depending on terrain or runway data (col 7, Ins 57-67; col 8, Ins 1, 12-16; Fig. 5, items 402, 404, and 410). It would have been

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obvious to one of ordinary skill in the art, at the time the invention was made that a pilot determines specific flight path angles depending on the terrain. For example, a 6° path angle may be necessary to navigate through mountainous terrain, while a 2° path angle may be necessary to navigate over a small town.

For claim 3, Hennings discloses initiating auto-recovery includes increasing flight path angle if a caution alert is received (col 8, lns 65-67; col 9, lns 1-10). However, Hennings does not disclose the flight path angle to be an additional 2° (4° total). Block, however, discloses that numerous flight path angles are specified depending on terrain or runway data (col 7, lns 57-67; col 8, lns 1, 12-16; Fig. 5, items 402, 404, and 410). It would have been obvious to one of ordinary skill in the art, at the time the invention was made that a pilot determines specific flight path angles depending on the terrain. For example, a 2° path angle may be necessary to navigate over a small town; however, it may be necessary to increase the path angle by an additional 2° while flying over mountainous terrain.

For claim 4, Hennings discloses initiating auto-recovery includes increasing flight path angle if a caution alert is received (col 8, lns 65-67; col 9, lns 1-10). However, Hennings does not disclose the flight path angle to be 6°. Block, however, discloses that numerous flight path angles are specified depending on terrain or runway data (col 7, lns 57-67; col 8, lns 1, 12-16; Fig. 5, items 402, 404, and 410). It would have been obvious to one of ordinary skill in the art, at the time the invention was made that a pilot determines specific flight path angles depending on the terrain. For example, a 6° path

angle may be necessary to navigate through mountainous terrain, while a 2° path angle may be necessary to navigate over a small town.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 1, and further in view of Reynolds (US 2003/0128122).

Hennings does not disclose a fly-by-wire system; however, Reynolds discloses an auto-recovery that includes sending control signals to a fly-by-wire system (paragraph 0005, Ins 1-5; parag 0012; parag 0015; parag 0021). It would have been obvious to include a fly-by-wire system for auto-recovery in order to integrate electrical communication equipment with a central computer thereby reducing the amount of equipment in the cockpit in order to conserve space.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 1, and further in view of Kelly et al. (US 4,910,513).

Hennings discloses initiating auto-recovery, but does not disclose a stick-pusher. Kelly, on the other hand, does disclose a stick-pusher for an aircraft controller (col 1, Ins 62-65; col 24-32; col 7, Ins 28-35). It would have been obvious to include a stick pusher for auto-recovery so that a pilot acknowledges an abnormal condition (via the stick-pusher before either the pilot or an auto-recovery system seizes control of the aircraft.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 1, and further in view of Bird et al. (US 6,6745,0945).

Hennings discloses an enhanced ground proximity warning system, but not a protected airspace alerting system. However, Bird discloses this feature (col 3, lns 25-30; Fig. 1A, 1B, item 12; col 6, lns 49-52). It would have been obvious to include a protected airspace alerting system so that a pilot is aware that a particular area is restricted, thereby enhancing the safety of aircraft crew members.

8. Claims 14-17, 21, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), and further in view of Tran (US 5,892,462).

For claim 14, Hennings discloses a system comprising: a means for receiving one of a caution alert or a warning alert from a warning system; a means for waiting a predefined period of time for positive flight control input by the flight crew; and a means for initiating auto-recovery if no positive flight control input has been performed at time of expiration of the waiting period (col 7, lns 35-59). Hennings discloses a means for initiating auto-recovery for generating one auto-recovery route (col 9, lns 3-16), but does not disclose a means for initiating auto-recovery for generating two or more auto-recovery routes; however, Tran discloses initiating auto-recovery for generating two or more auto-recovery routes (col 3, lns 7-13; col 8, lns 18-24; col 11, lns 28-54; col 12, lns 22-34; col 14, lns 54-60; col 15, lns 25-28 and 40-43; col 15, ln 67; col 16, lns 1-10; Fig. 9, items 52, 54). It would have been obvious to include two auto-recovery routes so that an aircraft determines the most appropriate type of flight required to evade a possible collision with the ground (col 15, lns 40-43).

For claim 15, Hennings discloses a means for initiating auto-recovery for generating one auto-recovery route (col 9, lns 3-16), but does not disclose a means for initiating auto-recovery for generating two or more auto-recovery routes; however, Tran discloses initiating auto-recovery for generating two or more auto-recovery routes relative to one or more of a terrain database, an airport database, an obstacle database, or a protected airspace database (col 3, lns 7-13; col 5, lns 1-7; col 8, lns 18-24; col 11, lns 28-54; col 12, lns 22-34; col 14, lns 54-60; col 15, lns 25-28 and 40-43; col 15, ln 67; col 16, lns 1-10; Fig. 1, item 42; Fig. 9, items 52, 54). It would have been obvious to include two auto-recovery routes so that the airplane determines the most appropriate type of flight required to evade a possible collision with the ground (col 15, lns 40-43).

For claim 16, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 17, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

For claim 21, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

For claim 23, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

For claim 25, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 12 as stated above.

9. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 14, and further in view of Block et al. (US 6,591,170).

The claims are interpreted and rejected for the same reasons as stated in the rejections of claims 2-4, respectively.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 14, and further in view of Reynolds (US 2003/0128122).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 9 as stated above.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 14, and further in view of Kelly et al. (US 4,910,513).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 11 as stated above.

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Tran (US 5,892,462), as applied to claim 14, and further in view of Bird et al. (US 6,6745,0945).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 13 as stated above.

13. Claims 27, 29, 30, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), and further in view of Tran (US 5,892,462) and Bird et al. (US 6,6745,0945).

For claim 27, Hennings discloses an apparatus for performing auto-recovery for an aircraft, the aircraft includes position and information systems and automatic flight control system, the apparatus comprising: memory for storing terrain data, airport data, obstacle data (col 45, Ins 27-40; col 8, Ins 53-63); and a processor coupled to the memory, the position and information systems, and automatic flight control system, the processor comprising (col 45, Ins 1-5; Fig. 1): a component for determining if one of a caution alert or a warning alert exists based on data stored in the memory and information received from the position and information systems (col 8, Ins 56-65); a component for waiting a predefined period of time for positive flight control input by the flight crew; and a component for generating an auto-recovery instruction and sending the generated auto-recovery instruction to the automatic flight control system if no positive flight control input has been performed at time of expiration of the waiting period (col 7, Ins 35-46; Fig. 1, item 150). Hennings, however, does not disclose storing protected airspace data. Bird, on the other hand, does disclose storing protected airspace data into memory (col 6, Ins 49-52; Fig. 1A, 1B, item 12). It would have been obvious to store protected airspace data in memory so that a pilot is aware of a restricted area to avoid, thereby enhancing the safety of an aircraft's crew and passengers. Hennings discloses a component for generating one auto-recovery route (col 9, Ins 3-16), but does not disclose a component for generating two or more auto-

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recovery routes; however, Tran discloses a component for generating two or more auto-recovery routes (col 3, lns 7-13; col 8, lns 18-24; col 11, lns 28-54; col 12, lns 22-34; col 14, lns 54-60; col 15, lns 25-28 and 40-43; col 15, ln 67; col 16, lns 1-10; Fig. 9, items 52, 54). It would have been obvious to include a component for generating two auto-recovery routes so that an aircraft determines the most appropriate type of flight required to evade a possible collision with the ground (col 15, lns 40-43).

For claim 29, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 30, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

For claim 34, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

For claim 36, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

14. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), Tran (US 5,892,462), and Bird et al. (US 6,6745,0945), as applied to claim 27, and further in view of Block et al. (US 6,591,170).

The claims are interpreted and rejected for the same reasons as stated in the rejections of claims 2-4, respectively.

15. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), Tran (US 5,892,462) and Bird et al. (US 6,6745,0945), as applied to claim 27, and further in view of Reynolds (US 2003/0128122).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 9 as stated above.

16. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), Tran (US 5,892,462), and Bird et al. (US 6,6745,0945), as applied to claim 27, and further in view of Kelly et al. (US 4,910,513).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 11 as stated above.

17. Claims 40, 42-44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), and further in view of Tran (US 5,892,462) and Bird et al. (US 6,6745,0945).

For claim 40, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 27 as stated above, regarding a component for generating tow or more auto-recovery routes. Hennings discloses an system for performing auto-recovery for an aircraft, the system comprises: aircraft position and information systems, an automatic flight control system; memory comprising terrain data, airport data, obstacle data (col 45, lns 27-40; col 8, lns 53-63), and an auto-recovery computer program product (col 4, lns 1-5; col , lns 40-45; Fig. 1); and a processor coupled to the memory Fig. 1, item 150), the position and information systems, and the automatic flight control system, the processor comprising: a component for determining if one of a caution alert or a warning alert exists based on data stored in the memory and information received from the position and information systems (col 8, lns 56-65); and a component for generating an auto-recovery instruction and sending the generated auto-

recovery instruction to the automatic flight control system if no positive flight control input has been performed at time of expiration of a waiting period (col 7, Ins 35-46; Fig. 1, item 150). Hennings, however, does not disclose storing protected airspace data. Bird, on the other hand, does disclose storing protected airspace data into memory (col 6, Ins 49-52; Fig. 1A, 1B, item 12). It would have been obvious to store protected airspace data in memory so that a pilot is aware of a restricted area to avoid, thereby enhancing the safety of an aircraft's crew and passengers.

For claim 42, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 43, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

For claim 44, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

For claim 46, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

18. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), Tran (US 5,892,462), and Bird et al. (US 6,6745,0945), as applied to claim 40, and further in view of Reynolds (US 2003/0128122).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 9 as stated above.

19. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), Tran (US 5,892,462), and Bird et al. (US 6,6745,0945), as applied to claim 40, and further in view of Kelly et al. (US 4,910,513).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 11 as stated above.

20. Claims 50, 52, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), and further in view of Tran (US 5,892,462) and Bird et al. (US 6,6745,0945).

For claim 50, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 27 and 40 as stated above, regarding a component for generating tow or more auto-recovery routes. Hennings discloses a computer program product residing on a computer readable medium for generating an auto recovery instruction for an aircraft, the product comprising: a component for determining if one of a caution alert or a warning alert exists based on one or more of terrain data, airport data, and obstacle data stored in memory, and information produce by aircraft position and information systems (col 4, lns 30-44; col 8, lns 52-64; col 9, lns 3-25); a component for waiting a predefined period of time for positive flight control input by the flight crew; and a component for generating an auto-recovery instruction if no positive flight control input has been performed at time of expiration of the waiting period (col 7, lns 35-46; Fig. 1, item 150) and a component for sending the generated auto-recovery instruction to an automatic flight control system. Hennings, however, does not disclose a memory for storing protected airspace data. Bird, on the other hand, does disclose

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storing protected airspace data into memory (col 6, lns 49-52; Fig. 1A, 1B, item 12). It would have been obvious to store protected airspace data in memory so that a pilot is aware of a restricted area to avoid, thereby enhancing the safety of an aircraft's crew and passengers.

For claim 52, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 53, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

21. Claims 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), Tran (US 5,892,462), and Bird et al. (US 6,6745,0945), as applied to claim 50, and further in view of Block et al. (US 6,591,170).

The claims are interpreted and rejected for the same reasons as stated in the rejections of claims 2-4, respectively.

Allowable Subject Matter

22. Claims 39, 49, 58, 59, 60, and 61 are allowed.

Response to Arguments

23. Applicant's arguments with respect to claims 1-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:


Fujisaki (US 6,748,325) discloses an automatic landing system where an aircraft selects the nearest airport during an emergency situation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Stone whose telephone number is (571) 272.2976. The examiner can normally be reached on M-F from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass, can be reached at (571) 272.2981. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Stone
January 12, 2006


JEFFERY HOFSSASS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600